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ORGANIZATION AND METHODS OF THE WALWORTH MANUFACTURING COMPANY¹

I. HISTORICAL

In 1841, J. J. Walworth and Joseph Nason formed a partnership in New York, under the firm name of Walworth & Nason, for the purpose of "warming and ventilating buildings by means of steam and hot water apparatus." The company was originally engaged in contracting and construction work. It purchased the necessary supplies and installed heating systems in dwelling and business houses. It used hot water as a means of heating until 1844 when it commenced to employ steam.

The company moved to Boston in 1842 and established a small plant in the heart of the city. Five years later the plant was transferred to Edgeworth but an office was maintained in Boston. The plant was employed to manufacture pipe which was used by the company in its installation work. The manufacturing operations of the company continued to be secondary to its contracting work.

In 1852 Joseph Nason withdrew from the partnership, and a new partnership was formed under the name of J. J. Walworth & Company. This partnership was incorporated in 1872 under the name of the Walworth Manufacturing Company.

In the late fifties the company commenced the manufacture of pipe fittings and later it undertook the production of valves. These were manufactured only because the company found it difficult to purchase elsewhere the fittings and valves which it needed in its construction work. It is interesting to note that at the present time the company has ceased to do construction work and has also ceased to produce pipe and devotes its entire energy to the production of fittings and valves.

As its activities increased, the company found its original plant insufficient and a new plant was established at Cambridgeport about 1860. This plant was continued in operation until 1882, when a factory was constructed in South Boston which continues in operation

¹ The author desires to acknowledge the courtesy of Mr. Howard Coonley, president of the Walworth Manufacturing Company, in granting permission for the publication of the material contained in this case.

and now constitutes one of the two manufacturing plants of the company—the other being at Kewanee, Illinois.

The company continued to produce pipe fittings and valves and to carry on its construction work until 1912. The personnel of the company had changed to some extent, but most of the officers and principal executives were persons who had long been in its service. In this year it was decided that a reorganization of the company was desirable and this was commenced by the selection of Mr. Howard Coonley, of Chicago, Illinois, as president of the company. Mr. Coonley brought about a complete reorganization of the company and commenced a campaign for extending its activities. This resulted in 1917 in the purchase from the National Tube Company of a factory at Kewanee, Illinois, and the establishment of a Western sales office at Chicago. The Kewanee plant trebled the output of the company and this in turn resulted in a change in the sales methods and policies.

II. ORGANIZATION OF THE COMPANY

The purchase of the Kewanee plant resulted in changes of considerable importance in the organization of the original company. Since that time the president has given much attention to developing an organization which would insure proper control over the Kewanee works and the increased sales.

The organization of the company as of July 30, 1918, is shown in Exhibit I on page 436. This chart of organization shows that an attempt had been made to set up a functional organization. It also shows that an executive committee was established composed of the officers of the company. This committee acted in an advisory capacity to the president and was authorized to act for him in his absence.

Exhibit II on page 437 shows the organization of the company as of May, 1920. It is of particular interest in showing the expansion in the number of staff assistants for sales promotion; the introduction of the office of vice-president in charge of production, with works managers at the Kewanee works and at the Boston works; and the introduction of the office of vice-president in charge of engineering, located at the general offices for developmental work in designed products.

The existing units of the organization of the company and its subsidiaries are in well-defined units of organization as follows: (1) general offices at Boston; (2) Boston works; (3) Kewanee works;

(4) Eastern sales division office at Boston; (5) Western sales division office at Chicago; (6) Walworth International Company, New York City; (7) Sales branches at Boston, Philadelphia, New York, Chicago, Seattle, and Portland.

The lines of authority in the present organization have been set forth by the president of the company in a chart of organization adopted in February, 1921, which is shown in Exhibit III on page 438. This chart has been sent to all officers, managers, and section heads and the lines of authority are therefore presumably understood.

The chart of the present organization, when compared with the May, 1920, chart, shows a further development in the centralization of administrative offices under the president as acting vice-president in charge of administration. It also shows the appointment of additional staff assistants in the office of the president.

The president of the company has issued a series of general orders defining the duties of all of the principal officers of the company. Exhibit IV (p. 438) shows General Order No. 61 giving the jurisdiction of the vice-president in charge of sales. Exhibit V (p. 446) shows General Order No. 62 giving the jurisdiction of the vice-president in charge of production. Similar orders define the jurisdiction of each of the principal executives. It is the policy of the president to maintain these jurisdictional orders and to issue amendments and revisions to them as required by changing conditions.

The president of the company is today in charge not only of external relations, that is, relations with directors, stockholders, competitors, and sources of supply, but is also in immediate charge of a considerable number of internal matters, such as purchasing, personnel, general office management, traffic management, and accounting. His relationship to these and to other internal functions is indicated by the chart of organization shown in Exhibit III. This organization necessitates that the president give his attention not only to external relations, not only to the correlation of sales, purchase, and finance, but also to direct supervision of purchases, personnel, office management, traffic, and accounting.

Exhibit III shows that there are three *staff* assistants in the office of the president. These staff assistants do not perform executive duties. One is used to collect, present, and analyze data for the use of the president, another is used to direct the budget work and to prepare reports for the use of the general officers, and the third is employed in the establishment of standardized methods and procedures.

The company not only sells the product which it produces, but also has a considerable volume of sales of material which it purchases from other manufacturers. The production department is responsible for the maintenance of an inventory of the articles produced by the company, while the general purchasing agent is responsible for the maintenance of an inventory of resale items. The general purchasing agent is independent of the production department and reports to the vice-president in charge of administration.

There is a vice-president in charge of production at the general offices who has supervision over the two factories of the company. There is a works manager at each factory who is answerable directly to the vice-president in charge of production. Exhibit VI (p. 456) shows a chart of organization for the Kewanee works. The same principles of organization are followed in the organization of the Boston works (which is very much smaller than the Kewanee works), except that production control has not been so well developed at Boston. From the chart of organization of the Kewanee works it will be noted that emphasis is placed upon the planning of production through a planning department and that recognition is made of the difference between control over the operations of foundries and control over the operations of machine shops.

The vice-president in charge of sales through an acting manager of branches is in control of the branches of the company. He is also in control of sales to jobbers and is assisted by the Eastern division sales manager, located at Boston, and the Western division sales manager, located at Kewanee. The vice-president in charge of sales is also in control of the export sales of the company through his position as president of the Walworth International Company.

It is the present practice of the company to maintain at each branch a branch manager, an assistant branch manager, and a branch office manager. The company uses a different man for each of these positions and the officers of the company argue that three men are needed at each branch as executives in order that each branch may be as completely organized as any jobbing house with which the branch competes. The manager of the branch reports directly to the vice-president in charge of sales. The branch manager and his assistants are under the functional control of the treasurer, general auditor, and other functional officers of the company.

The vice-president in charge of engineering at the general offices of the company has control of product designing. He and his

assistants are authorized to make recommendations with reference to changes in design. The recommendations made by the vice-president in charge of engineering are passed upon by the vice-president in charge of sales and the vice-president in charge of production before being adopted by the company. The vice-president in charge of engineering is authorized to carry on the experimental work at the factories which is thought necessary to determine the desirability of the various designs and patterns of production which are contemplated.

The treasurer, located at the general office, is in charge of the routine financial matters of the company, but the president of the company assumes the responsibility for supervision over the major financial operations. There is an assistant treasurer at the general offices at Boston and also at the Western division office at Chicago. These report directly to the treasurer. The treasurer is assisted by a credit and collection manager at the general office and he is represented by the office manager of each branch who has charge of branch credits. There is a cashier at each of the units of the company who is under the control of the treasurer. The treasurer has functional control of the financial operations of all the branches, divisions, and works.

III. METHODS

Business administration may be conceived as involving three things: (a) the establishment of policies, (b) setting up of an organization to carry out these policies; (c) the operating or running of the organization which involves the establishment and enforcement of operating procedures.

Section II has dealt with the general policies of the company and the organization through which these policies are enforced. It is the purpose of this section to set forth the operating procedures employed by the organization. These procedures or methods may be treated under the following headings: (1) administrative control in the general office; (2) establishment of uniform procedures for control of departmental and interdepartmental operations; (3) financial control; (4) sales control; (5) production control; (6) purchasing control; (7) expense control; (8) branch house control; (9) accounting and statistical control.

1. *Administrative control in the general offices.*—As shown by Section II the administrative control of the company is centralized in the general offices at Boston and all the general officers are located there.

The company has expanded rapidly during recent years and this has led to an increase in the duties of each of the general officers, and has tended to produce some confusion as to the classification of administrative duties. In order to eliminate this confusion special studies have been made of the jurisdiction of each of the functional officers and general orders have been issued establishing the jurisdiction of each. The nature of these orders is shown by Exhibits IV and V.

During the years 1919 and 1920 the problem of co-ordinating the activities of the departments became so acute that it was decided to establish a formal system of budgetary procedure which would provide a basis for more efficient co-operation between the executives. Considerable study was made of this problem by outside counsel co-operating with the executives of the company during the latter part of 1920. As a result a manual of budgetary procedure outlining the preparation of the departmental estimates and the formulation of the various budgets was prepared in December, 1920, and a system of budgetary procedure was established effective January, 1921. Because adverse market conditions in 1921 made necessary the curtailment of all possible overhead, the budgetary program has been restricted to some extent during the current year, but it has continued in operation in its main essentials and is gradually being perfected with every evidence of its successful operation.

The head of the Planning and Statistics Section, under whose control the direction of the budgetary program has been placed, in a letter dated December 19, 1921, says:

In this phase of our activities we have studied as much of the past of the company as time has permitted, and have also kept in touch as much as possible with the current economic conditions with special reference to any factors affecting our industry.

With this background we call for estimates on all phases of the business from the several departments, and, after having reviewed these in the light of such economic data as we have on hand, we attempt to forecast monthly the total sales, purchases, pay rolls, cash receipts, cash disbursements, and inter-company transfers for the Walworth Manufacturing Company and its subsidiaries.

At the end of each quarter-monthly period, we compile from the best of our available resources preliminary figures showing to what extent the forecasted results are being realized. At the end of each month we make comparisons by departments of the actual with the estimated which we refer back to the department heads to show them to what degree of accuracy they have been able to estimate their future activities. We also have been

issuing a few paragraphs and comments at the end of each month upon the reasons for variations between the estimated and the actual and giving explanations for large variations in the actual monthly figures.

We are now about to adopt something more definite in the way of budgetary control in connection with office expenses. It is our plan to refer the departmental estimates of the general office expenses together with the summary thereof to the president who will take them up with the advisory committee for approval. When such estimates have been ultimately approved by the advisory committee, they shall look upon them as appropriations which are not to be deviated from without the permission of the advisory committee. In this way we shall have a very definite control of our general office expense before it has been incurred.

The increase in the various duties assumed by the functional executives has led to a demand for more comprehensive information with reference to the operations of the business. To meet this need a study was made during the latter part of 1920 of the reporting requirements of the business, and a series of reports was designed for the use of each of the principal executives. These reports were adopted, effective as of January 1, 1921. It was the purpose of these reports to present to the executive at the end of each month the following information: (a) the performance of the current period; (b) comparison of the performance of the current period with the performance of past periods; (c) comparison of the performance of the current period with the estimated performance of the current period; (d) comparison, when possible, between the performance of the period and the results of this performance. For instance, the reports show a comparison between sales and net profits, sales and selling expenses, and other similar items. Exhibit VII (p. 457) is a specimen of the type of reports received by the executives.

The head of the Planning and Statistics Section, who has control of the preparation of the executive reports, in this same letter of December 19, 1921, sets forth the work which is being done in this connection as follows:

A. *Periodic Reports.*

We are preparing and issuing periodically the following reports:

1. Sales

- a) Monthly Comparative Report of Sales.
- b) Quarter-monthly Sales Report.

2. Production

- a) Monthly Comparative Summary of Orders Received, Shipments, Production, Cancellations, Unfilled Orders and Other Receipts into Stock.

- b) Monthly Summary of Production
- c) Monthly Group Pound Cost
- d) Monthly Summary of Orders Received
- e) Monthly Summary of Shipments
- f) Monthly Summary of Operations
- 3. Finance
 - a) Reports on Accounts Receivable
 - b) Reports on Collections
 - c) Reports on Accounts Payable
- 4. Administration
 - a) Undistributed Expense
 - b) Pay-Roll Summary
 - c) Purchase Commitments of the Factories
 - d) Monthly Estimates of Cash Receipts
 - e) Monthly Estimates of Cash Disbursements

These reports are in addition to those that are more directly connected with the master estimate and are preliminary to the audited reports which come out somewhat later in the month. The value of our reports is that they give the executives very accurate information as to the various activities of the company at the earliest possible moment, thereby enabling them to keep their finger on the pulse at all times.

B. *Charts*

Much of the information which we compile lends itself admirably to charting. We therefore publish each month charts showing our sales, net orders received, shipments, production, inventories, unfilled orders, etc.

C. *Compilations*

We have studied as much as possible the past activities of the company, and in so doing we have attempted to compile in the best possible form statistics relating to the following:

- 1. Sales (Billing)
 - a) By months
 - b) By groups
 - c) By units
 } In dollars
- 2. Shipments
 - a) By months
 - b) By factories
 } In tonnage
- 3. Orders Received
- 4. Production
- 5. Unfilled Orders
- 6. Cancellations of Orders

Some of the reports which were adopted for use during the year 1921 are not now being issued because of the desire to decrease the overhead expense of the company as much as possible.

2. *Establishment of uniform procedures for control of departmental and interdepartmental operations.*—Because of the volume of business performed by the company and the interdependence of its departmental activities, it has been found necessary to establish uniform procedures for the control of the departmental and interdepartmental operations. These procedures have been formulated as the result of detailed studies made by the staff officers of the company assisted by professional counsel and have been established by the issuing of a series of orders which outline these procedures and authorize their use. These orders are classified as:

- a) General Orders
- b) Special Orders
- c) Accounting Orders
- d) Division Orders
- e) Works Orders.

3. *Financial control.*—Through the estimates of cash receipts and the estimates of cash disbursements which are prepared in connection with the budgetary program, it is possible to formulate a financial budget which shows the financial needs of the company. During the past year these estimates have been made for one month in advance. It is the expectation of the company that during the next year they will be made for each quarter subject to revision at the end of each month. The establishment of definite appropriations for the expenses of each of the functional departments will provide an effective control of the disbursements of the company. An effective control of credits and collections has been established.

Considerable attention has been given to the proper accounting procedure for controlling cash receipts and disbursements, and a comprehensive and effective method has been established and general orders issued definitely authorizing the procedure to be followed.

The treasurer receives monthly reports which give him comprehensive information with reference to (a) cash receipts; (b) cash disbursements; (c) accounts receivable; (d) collections; (e) accounts payable; (f) general financial condition of the company.

4. *Sales control.*—Quarterly sales estimates are prepared by each of the branches and divisions of the company. These are combined by the vice-president in charge of sales and his staff and co-ordinated

into a sales budget for the company as a whole. The vice-president in charge of sales and his staff assistants receive weekly and monthly reports which provide information with reference to current sales and a comparison between current sales, past sales, and estimated sales. They also receive supplementary reports from the managers of the branches and divisions.

5. *Production control*.—The budgetary program contemplates that a production budget will be prepared which will provide for a correlation of the production with the sales program. So far this part of the budgetary program has not been perfected. As a result an effective control of the inventory of the company has not been established, and it has not been possible to establish as effective control over the purchase of labor and materials as is desirable. Considerable thought has been given to this problem and steps are now being taken to effect its solution.

The establishment of a planning department, to provide for the control of production operations, was effected in connection with the Kewanee works during the year 1920. The operation of this department has been curtailed to some extent during the year 1921 as a means of decreasing the overhead expense in connection with the production operations. The essentials of the planning operations have been retained, however, and it is the purpose of the company to develop the planning procedure in full as soon as the business of the company will permit.

So far a planning department has not been established at the Boston factory. The executives of the Boston factory attempt to control the volume of production by personal supervision. Supervision of the plant operations is largely in the hands of the foremen of the departments.

6. *Purchasing control*.—Prior to the installation of the budgetary program, the control of the purchases of the company had been inadequate. Due to the difficulty of obtaining sufficient materials for manufacturing purposes during the years 1919 and 1920, contracts were entered into covering the expected needs of the company for a considerable period of time. These contracts proved a source of considerable embarrassment to the company and resulted in its purchase of materials at excessive prices and this in turn resulted in excessive production costs. The use of this high-priced material has been one of the important causes of the unfavorable showing of the company during the year 1921. The budgetary program will bring

the purchases of the company under control, and it is the intention of the company to put this part of the budgeting into effect at once.

7. *Expense control.*—The *Manual on Budgetary Procedure* which has been adopted by the company provides for the effective control of the expenses of each of the departments of the business. It will be noticed from the statement of the head of the Planning and Statistics Section (see p. 431) that this control is now being exercised for the general-office expenses and that it is the intention of the company to extend this control to all departments of the business as rapidly as possible.

Reports which provide comprehensive information with reference to the departmental expenses have been designed for the use of the departmental executives, the president, and the advisory committee. Most of these reports are now in operation, and others are to be put into use as rapidly as possible. At the present time a very careful scrutiny of the departmental expenses is made by the executives of the company and an effective control is exercised through their personal supervision. Obviously this procedure will not be satisfactory when the operations of the business return to normal, and, therefore, it is planned that each of the executives shall have satisfactory reports for his use.

8. *Branch house control.*—The establishment of branches has been a comparatively recent development of the company, and it has been necessary to give considerable time and study to the establishment of standardized procedures for the control of their operations. During the years 1919 and 1920 a detailed study was made of the management and operating methods of the branches, and reports were designed for the use of the branch managers, and for the general officers in exercising control of branch operations. A manual on branch house management and accounting was prepared and adopted during the early part of 1921. It was contemplated at that time that an additional manual would be prepared establishing standardized operating procedures for the branches. Due to the necessity of curtailing expenditures the latter manual has not been prepared. Through the issuance of general, special, and accounting orders well-standardized procedures for branch control have been established and are now in force.

9. *Accounting and statistical control.*—Much attention has been given to accounting methods and procedures during the past four years. The accounting department was reorganized in 1917 largely with the purpose of centralizing the accounting control in the general

office. A satisfactory classification of accounts, which has been revised from time to time, was prepared for the company and made effective as of January 1, 1919. Considerable attention has also been given to the accounting of the various branches and factories, and a number of changes have taken place during the last few years which have increased its effectiveness. The chief deficiency of the accounting department during the past three years has been its inability to prepare the monthly reports with sufficient promptness to make them available for the use of the executives immediately after the end of the period for which they are prepared. This has been due in part to the fact that the accounting department has expanded rapidly and that it took some time for it to standardize its operations so that it could work as a well co-ordinated whole. The most important executive reports are now prepared by the head of the Planning and Statistics Section and are submitted to the executive officers before the preparation of the audited reports. This has removed a large part of the difficulty arising from the delay of the accounting reports.

During 1921 considerable attention was given to the development of statistical studies in connection with the company's operations. Some statistical work is carried on by the various departments, but all statistical work is under the functional control of the Planning and Statistics Section. The following is quoted from a letter from the head of that section dated December 19, 1921:

In the execution of the work outlined in the foregoing sections of this letter, we have found it necessary from time to time, to make special statistical studies.

In attempting to formulate some principle by which we could be guided in forecasting our sales, we made a special study to determine whether there existed any correlation between the sales of the Walworth Manufacturing Company and the contracts awarded as reported by the F. W. Dodge Co. The result of this study was the determination of a fairly good coefficient of correlation.

We are just completing a special study which was instituted for the purpose of determining whether there is a "products group cycle" in our business or, in other words, whether there exists a certain sequence in business conditions. We believe that we have found that there does exist a certain sequence in which our products pick up from a period of business depression and fall off after a peak of prosperity.

Another study which we have in mind but in which we have not as yet been able to make any definite progress is to determine the position of the pipe and fittings industry in the general economic cycle. Babson

reports that in the present and previous cycles, the various industries have been affected in the following sequences: (1) silk, (2) leather, (3) boots and shoes, (4) woolens, (5) cottons, (6) clothing, (7) furniture, (8) building materials, (9) automobiles, (10) paper, (11) iron and steel, (12) oil. We are well down in the list.

What we wish to do is to refine this analysis so that noting that there is an improvement or a depression in the industries first affected, we may be placed on our guard and be prepared.

We are also contemplating a definite study of the seasonal character of our various products, particularly from a standpoint of individual items, in order that we may co-ordinate our sales and production to the greatest possible extent.

We also have in mind the figuring of a Walworth price index which we could chart in comparison with one of the general commodity indices, such as are published by the U.S. Bureau of Labor, Bradstreet's, Dun's, etc.

IV. SUGGESTED CHANGES IN ORGANIZATION AND METHODS

In the early part of the year 1922 a general survey of the organization and methods of the company was made with the purpose of determining: (1) the efficiency of the existing organization and methods; (2) the possibility of changing the organization and methods to accomplish: (a) more effective control of the operations of the company; (b) reduction in overhead expense.

As a result of this survey a report was made concerning organization and the following is a condensed summary of the recommendations made.

1. *Organization of the office of the president.*—It is recommended that there be created the office of vice-president and general manager and that the president delegate to this office all routine problems involved in the co-ordination of sales, production, and finance as well as supervision over all general-office activities. It is intended that the general manager shall aid the president in all matters of executive control and shall act for the president during his enforced absence.

It is argued that because of the present financial and market conditions it is imperative that the president should give unremitting attention to external relations which involve contacts of great importance with brokers, bankers, board of directors, stockholders, and competitors. It is thought that these matters will occupy so much of his time that he should be relieved of the duties which it is proposed to delegate to the general manager.

2. *Organization of production and purchases.*—It is recommended that the office of vice-president in charge of production be abolished

and that a vice-president and works manager reporting directly to the vice-president and general manager be located at each of the factories.

It is argued that this should be done for two reasons:

a) The problems are so dissimilar at the Boston and the Kewanee works that it is not feasible to have the two factories under the control of a central production executive who will attempt to establish and enforce uniform procedures for the two.

b) The Kewanee works is so far from the general office that it is necessary to have an officer of the company located at the works who can be given authority to handle the many problems which are continually arising, without the necessity of referring them to the general office. Since it is necessary to have a vice-president at the Kewanee factory it is suggested that there be a vice-president at the Boston factory, although it is not contended that this is necessary.

It is further recommended that the purchases of resale material be placed under the production executives so that there may be undivided control of inventories. It is proposed that this be accomplished by having a purchasing agent at each factory reporting to the vice-president and works manager.

3. *Organization of sales.*—It is recommended that the office of manager of branch houses be abolished and that the branches report directly to the vice-president in charge of sales. It is argued that it is desirable for the vice-president in charge of sales to become intimately acquainted with the personnel and activities of the branches and that the number of branches which are now operated are not sufficient to make the services of a manager of branch houses necessary.

It is also recommended that the office of assistant manager at each branch be discontinued and that the office manager act as credit manager, and assistant to the manager. It is argued that the standardization of branch methods which has been accomplished by the issuance of the branch-house manual makes possible this reduction in branch personnel.

4. *The vice-president in charge of engineering.*—It is recommended that the office of vice-president in charge of engineering be abolished and that experimentation and development work be carried on at each factory. It is recommended that a product engineer be placed at each works and that work with reference to valves and fittings be carried on at the Kewanee factory and work with respect to hardware specialties be carried on at the Boston factory. It is believed that

the vice-president and general manager, acting through the vice-president at each works, can effect co-ordination of the work performed by the product engineers.

5. *Organization for accounting and statistical control.*—It is recommended that the offices of assistant to the president and general auditor be combined. It is argued that the standardization of methods which has been effected makes this combination possible. It is also recommended that there be but one assistant in the office of the president in addition to the one who acts as head of the accounting department.

The suggested changes in organization are shown in the chart of organization given in Exhibit VIII on page 458.

The following changes in methods are recommended:

1. The simplification of accounting with the aim of securing a better understanding of accounting reports by executives in all units of the organization.
2. The development of the system of production control at the Kewanee works so as to provide for seasonal stocks.
3. The installation of a system of production control at the Boston works.
4. The further development of sales budgets so as to provide for strict control over purchases of raw materials and for better balancing of inventories of finished stocks both at the works and at the branches.

QUESTIONS FOR DISCUSSION

1. "The purchase of the Kewanee plant resulted in changes of considerable importance in the organization of the original company." Why should this be true?
2. The organization of the company as shown by its organization chart of July 30, 1918, provides for an executive committee which is authorized to act for the president in his absence. The suggested organization shown in Exhibit VIII provides for a vice-president and general manager to act for the president during his absence. Which method do you think better?
3. Why not let the vice-president in charge of sales or the vice-president in charge of production act for the president in his absence?
4. The proposed organization as shown in Exhibit VIII is based on the assumption that the president is to have charge of the "external" relations of the company and that the vice-president and general manager is to have supervision of the problems of "internal" administration. Do you think *external* problems can be divorced from *internal*

problems? Is there any other way to accomplish the purpose which it is intended to accomplish by the appointment of a vice-president and general manager?

5. Do you think the appointment of a vice-president in charge of administration as provided in the chart shown in Exhibit III would make unnecessary the appointment of the vice-president and general manager shown in Exhibit VIII?
6. What advantages and what disadvantages do you see in the proposed plan to abolish the office of vice-president in charge of production and to establish the office of vice-president and works manager at each factory?
7. What are the possible advantages and disadvantages of the proposed abolition of the office of vice-president in charge of engineering?
8. Do you agree that there should be a purchasing agent at each factory who should report to the vice-president and works manager of the factory? What other plan might be followed to accomplish the same end?
9. What benefits may be derived from the preparation and issuance of jurisdictional orders such as those shown in Exhibits IV and V? What is your opinion of the plan and content of these orders?
10. What are the most important changes in organization shown by Exhibits I, II, III, and VIII?
11. In Exhibit III the general auditor, as head of the accounting department, reports to the vice-president in charge of administration. What other form of organization might be used for accounting control?
12. What are the most significant features of the system of budgetary control as described in the letter of the head of the Planning and Statistical Section? What are its weaknesses?
13. Study the operating procedures of the company as discussed under "Methods" and make a list of (a) the points which you regard as well taken and (b) the points which you regard as not well taken.
14. To what extent are the reports received by the executives different from those customarily received by executives? Do you regard these differences as desirable or undesirable?
15. Compare the methods of production control used at the Kewanee and Boston factories.
16. "The branch manager and his assistants are under the functional control of the treasurer, general auditor, and other functional officers of the company." What does this mean?
17. "The chief deficiency of the accounting department during the past three years has been its inability to prepare the monthly reports with sufficient promptness to make them available for the use of the executives immediately after the end of the period for which they are prepared." What remedies do you suggest for this situation?

18. In the 1922 recommendations on methods the following is suggested: "The development of the system of production control at the Kewanee works so as to provide for seasonal stocks." What does this mean?
19. There is also recommended: "The further development of sales budgets so as to provide for strict control over purchases of raw materials and also so as to provide for better balancing of inventories of finished stocks both at the works and the branches." How can sales budgets be used for this purpose?
20. It is stated that one of the purposes of the survey made in 1922 of the organization and the methods of the company was to determine "the possibility of changing the organization and methods to accomplish (a) more effective control of the operations of the company; (b) reduction in overhead expense." If the recommendations are carried out, will the ends sought be obtained? To what extent do you think the recommendations made may have been influenced by a consideration of the available personnel of the company?

EXHIBIT I

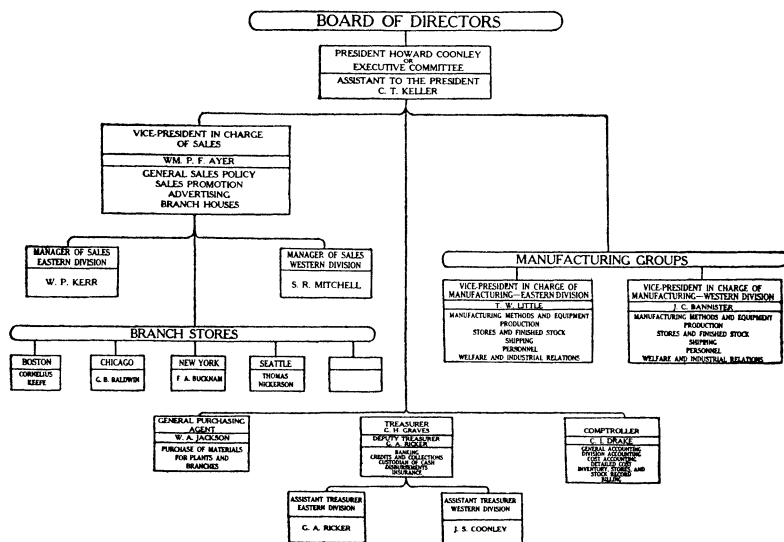


EXHIBIT II

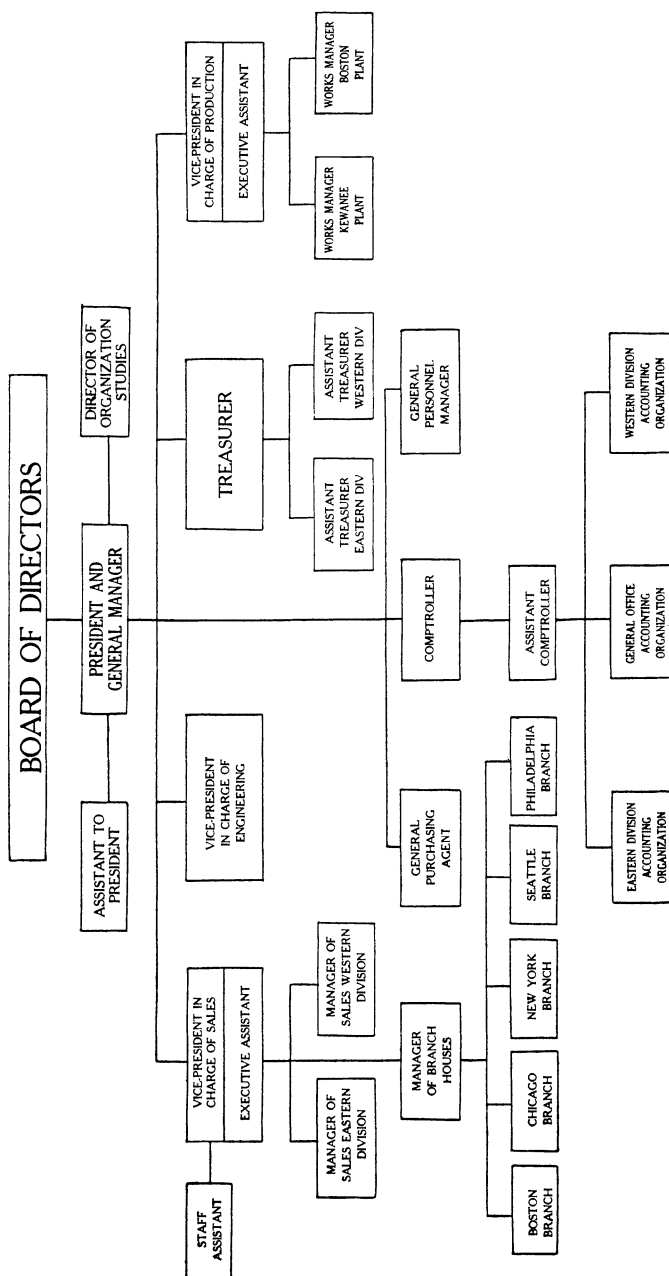


EXHIBIT III

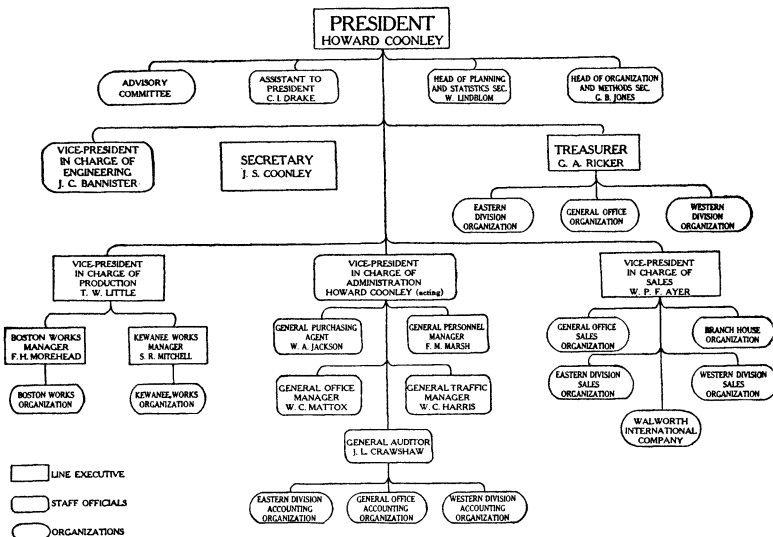


EXHIBIT IV

March 5, 1921

ORDER No. 61

GENERAL ORDERS

To: All executives for action

To: Others for information

Subject: JURISDICTION OF THE VICE-PRESIDENT IN CHARGE OF SALES

A. Explanatory note

The jurisdictions defined hereinafter extend to all subsidiaries of the company except where specifically limited to the company

B. Introductory

Under the direct authority of the president, the vice-president in charge of sales will have direct executive control of the following functions:

C. Jurisdiction shared jointly with the vice-president in charge of production

1. Approving additions to, alterations in design of, or discontinuance of Walworth products, with special reference to standardization
2. Approving the necessity for patenting Walworth product, and for acquiring product patents
3. Approving the location of new plants with reference to material and labor supply, and market advantages
4. Approving the classification of material as standard or special, and the acceptance of orders or contracts for special material

5. Approving the substitution of purchased for manufactured material
 6. Approving the apportionment of factory storage space and inventory investment between Walworth and resale material
 7. Approving the basis for charging interplant and plant to export warehouse shipment
 8. Approving the apportionment of Walworth stock as between plants and plants and export warehouse
 9. Approving the necessity for junking or salvaging slow-moving or obsolete finished stock or parts in plant inventories
- D. Jurisdiction assigned exclusively to the vice-president in charge of sales
1. Competitive selling points on products
 - a) Formulating and distributing data as to competitive features of sales material
 2. Sales estimates and quotas
 - a) Estimating actual and potential consumption per capita, and by sales units, and salesmen's territories, for total line, and classes of product, and comparing with Walworth's volume
 - b) Estimating sales requirements by product classes, "Significant items," and sales units as basis for joint sales and production program
 - c) Establishing product quotas for sales units and territories, and controlling distribution in accordance with such quotas
 - d) Recording and reporting actual versus estimated sales out of branch and Walworth International Company stock, comparing rate of increase of volume of sales with increase in building permits, bank clearances, and other indexes
 3. Data as to competitors
Recording fundamental data as to competitors' aims, policies, distribution, volume, etc.
 4. Distribution analysis
Recording, reporting, and analyzing fundamental estimates and statistics as to geographical, industrial, and trade distribution of sales, and classes of sales
 5. Advertising and sales promotion
 - a) Planning all advertising campaigns, determining advertising appropriation required and apportionment thereof between various classes of advertising expenditure
 - b) Determining need for and hiring all agency service, and conducting all agency relations other than accounting and financial
 - c) Preparing or causing to be prepared, and distributing or causing to be distributed, supervising exhibition of or placing all forms of advertising except financial advertising

- d) Designing or causing to be designed all trade-marks
 - e) Checking or causing to be checked all advertising insertions and bills
 - f) Analyzing and improving inquiry-correspondence methods from advertising standpoint and preparing or reviewing such classes of circular letters as involve advertising values and technique
 - g) Analyzing and improving advertising value of shelf-display packing
 - h) Compiling and maintaining all mailing lists of customers and prospects
 - i) Recording results traceable to campaigns and media
 - j) Maintaining, recording, and reporting advertising material stocked in quantity or possessing inventory value
 - k) Maintaining files of competitors' literature and magazine copy
 - l) Training all "missionary" men, soliciting sample orders and dealer co-operation, and conducting all other personal missionary effort preliminary or auxiliary to the work of the regular sales force
6. Soliciting, quoting, and selling
- a) Planning and scheduling sales campaigns, for company (including Walworth International Company) and for each sales unit, to dispose of estimated quotas
 - b) Recording data as to Walworth customers and prospects, as to volume and kind of business, sources, and outlets controlled, geographical sphere of influence, attitude toward house, etc.
 - c) Soliciting and/or answering all customers' inquiries
 - d) Soliciting and/or answering all incoming intercompany inquiries at all sales units and sending out all intercompany inquiries at such units
 - e) Recording such inquiries and percentage materializing into orders, and analyzing causes for loss of orders
 - f) Recording all customers and intersales unit quotations
 - g) Closing all sales and sales contracts
 - h) Recording results of salesmen's class, and establishing "call efficiency" standards
 - i) Assisting the treasurer in obtaining first-hand credit data
 - j) Placing "try-out" samples of new products and recording and reporting results
7. Price and pricing
- a) Establishing and distributing all customers' and intercompany prices subject to the provisions of General Order No. 41
 - b) Formulating all policies and regulations as to freight allowance
 - c) Performing all pricing operations on all branch and Walworth International Company orders except their orders on the works

and on all direct shipment engineering sales orders not priced on a list and discount basis, and pricing as to discount or indicating customers' price basis on all other orders (according as special local rulings or the character of the order does or does not necessitate indicating the discount or unit price at the transmitting sales office), except stock orders on or between works

- d) Pricing Western division customers' orders as to list, pending the transfer of Western division sales office to Kewanee
- e) Checking all prices indicated by customers on open orders
- f) Checking all quoted customers' orders against quotations
- g) Checking all intercompany sales charges except for stock transferred from plant to plant or from branch or export warehouse to plant

8. Orders

- a) Recording receipt of all orders and cancellations placed by customers and intercompany orders and cancellations on branches and Walworth International Company
- b) Preliminary review of all domestic customers' orders as to credit, subject to the treasurer's functional control
- c) Acknowledging all customers' and intercompany orders on branches and Walworth International Company, and all other correspondence with customers as to status or order
- d) Negotiating with customers on all customers' cancellations, and with works and between-sales units on all intercompany cancellations
- e) Determining all priorities as between customers and classes of customers, and furnishing factories with priority information
- f) Editing all original customers' orders as to Walworth terminology and all other features necessary to interpret the customers' requirements
- g) Routing all such customers' orders as to factory branch or Walworth International Company out-of-stock shipment or outside purchase, and as to which factory or branch, or which vendor (where delegated by purchasing organization having jurisdiction)
- h) Copying all such customers' orders and all branch and Walworth International Company stock orders
- i) Writing all branch and Walworth International Company out-of-stock shipping orders
- j) Scheduling shipment on branch and Walworth International Company out-of-stock shipping orders
- k) Following up progress of all orders placed by sales offices on factories, outside vendors and Walworth International Company warehouse

9. Branch and Walworth International Company balance of stores
 - a) Establishing and revising maxima and minima and quantities to order for:
 - (1) All branch and Walworth International Company stock including pipe exclusively used for fabricating, and resale material
 - (2) All branch and Walworth International Company office, warehouse, and pipe-shop supply stock
 - b) Maintaining all balance of stores records of such material, subject to the functional control of the general auditor
 - c) Determining availability in branch and Walworth International Company stock of material called for on orders received by such units
 - d) Reporting to branches and divisions all slow-moving and all obsolete branch and Walworth International Company stock
10. Branch and Walworth International Company store warehouse, and pipe-shop materials (including office, warehouse and pipe-shop supplies, refuse, and salvage)
 - a) Receiving

Weighing in, checking against stock and outside purchase orders, prepaying express charges for, recording and reporting receipt of, directing disposition of, and causing to be delivered
 - b) Moving

Loading and unloading, and moving to and from storage, between and within branch and branch warehouses, to and from carriers, customers, and vendors, to public dumps, and from works and pipe shop (in case of Boston branch)
 - c) Storing
 - (1) Storing and recording receipt into and issue from stores
 - (2) Conducting physical inventories of stores
 - d) Packing

Packing all shipments out of branch and Walworth International Company stock (subject to functional supervision of general traffic manager as to traffic requirements for packing)
 - e) Shipping

Preparing and distributing all bills of lading and other shipping papers for checking description for, weighing out, preparing and obtaining receipt for (in the case of express shipments), supervising loading of, and sealing cars for, when required, all shipments from each branch and from Walworth International Company warehouse
 - f) Sale of salvage material, barrels, etc.

Selling and recording and reporting sale of all such material at branches, Walworth International Company, and of all finished stock or parts in factory inventories

11. Planning for and performance of branch pipe-shop work
Routing to machines, scheduling, dispatching, and inspecting, and performing all branch pipe-shop work
12. Branch and warehouse construction, maintenance, and operation
 - a) Approving the design of new branches and warehouses and branch and warehouse extensions and alterations
 - b) Supervising branch and warehouse construction work under functional supervision of vice-president in charge of engineering
 - c) Operating branch and warehouse heat, light, power, and water service or seeing to it that proper service is rendered by all outside companies concerned in such service
 - d) Maintaining all Walworth-owned branch and Walworth International Company equipment and care of all other branch equipment, under functional supervision of vice-president in charge of engineering, with respect to pipe-shop equipment, and of the general office manager, with respect to office equipment
13. Claims and complaints
 - a) Investigating, conducting negotiations with customers and intercompany negotiations, preparing all necessary debits and credits to customers and intercompany accounts and maintaining all necessary records and reports, in connection with all customer and intercompany claims; with the co-operation of the proper representatives of the general traffic manager and the general purchasing agent, as provided for under their respective jurisdictional orders, in connection with traffic matters and relations with vendors, and subject to the functional control of the proper representatives of the treasurer, as provided for under General Order No. 57, in connection with financial claims
 - b) Clearing, adjusting with customers, recording, reviewing, and reporting to organization concerned all customers' complaints not involving claims
14. Traffic
Establishing and maintaining such policies, organization, and procedures for the performance at each sales unit of such functions as are or may be assigned to the jurisdiction of the traffic manager under General Order No. 56 and delegated by him to the vice-president in charge of sales, as the former may require, subject to the approval of the president; with special reference to:
 - a) Routing of shipments out of branch and Walworth International Company stock as to carrier and route
 - b) Advising branch and Walworth International Company's shipping units as to proper methods of preparing and handling shipping papers, custody of outgoing shipping documents, and recording of outgoing prepaid shipments

- c) Supervising loading and unloading of cars at branches and Walworth International Company warehouse with reference to carriers' regulations and safety of company's material
 - d) Quoting traffic rates to branches and Walworth International Company shipping and purchasing units, keeping such departments advised as to local rate increases, and pricing branch and Walworth International Company out-of-stock shipping orders as to freight allowance rate and war tax
 - e) Tracing incoming and outgoing shipments for branches and Walworth International Company and advising branch and Walworth International Company purchasing units as to routings for incoming material
 - f) Approving branch and Walworth International Company freight bills as to rates
 - g) Adjusting with carriers, Walworth International Company and branch transportation claims, and recommending adjustments with customer
 - h) Collecting c.o.d. remittances from carriers for branches and Walworth International Company
 - i) Procuring passenger tickets and preparing itineraries, including assistance in establishing territorial boundaries and routes within territories, for employees of sales units
15. Purchasing
- Establishing and maintaining at all branches and both divisions such policies, organization, and procedures for the performance of such functions as are or may be assigned to the jurisdiction of the general purchasing agent, under General Order No. 52, and amendment thereto or other subsequent general orders and delegated by him to the vice-president in charge of sales, as the former may require, subject to the approval of the president; with special reference to:
- a) Negotiating with vendors of standard resale lines, with a view to appraising the resale possibilities of such lines and presenting Walworth facilities for distribution
 - b) Making preliminary arrangements with vendors for purchase of division, pick-ups, and direct shipment resale material. Purchasing and recording purchase of branch and Walworth International Company resale material
 - c) Purchasing branch and Walworth International Company equipment and supplies
 - d) Maintaining "jobbing cost records" for resale material required at selling units
 - e) Selling and recording and reporting sale of all salvage material, other than second-hand material

16. Branch finance

Establishing and maintaining such policies, organization, and procedures for the performance at each branch and at the Walworth International Company of such functions as are or may be assigned to the treasurer's jurisdiction, under General Order No. 57 or other subsequent orders, and delegated by him to the vice-president in charge of sales, as the former may require, subject to the approval of the president; with special reference to:

- a) Passing on all branch credits
- b) Making and receiving, indorsing and banking all branch collections
- c) Disbursing all branch and Walworth International Company working funds
- d) Maintaining all branch bank accounts and such Walworth International Company accounts as the treasurer may delegate
- e) Placing such branch and Walworth International Company insurance as the treasurer may delegate
- f) Making such branch property tax returns as the treasurer may delegate

17. Accounting

Establishing and maintaining such policies, organization, and procedures for the performance at each sales unit of such functions as are or may be assigned to the jurisdiction of the general auditor, in General Order No. 46 or other subsequent orders, and delegated by him to the vice-president in charge of sales, as the former may require, subject to the approval of the president; with special reference to:

- a) Invoicing for all branch and export warehouse, out-of-stock shipments, all branch direct shipments from vendor (including shipments from export warehouse to Branch customers) and all direct shipments from Kewanee pending the transfer of Western division invoicing from Chicago to Kewanee and from outside vendors to export customers
- b) Keeping all branch receivables
- c) Costing, classifying, and tabulating all branch charges to customers
- d) Keeping all branch and Walworth International Company direct shipment registers, and cash books, and preparing branch and Walworth International Company journal vouchers originating at such units
- e) Preparing reports of all branch accounts receivable, status of working fund, inventory as required by the general office, and cash receipts and collections
- f) Preparing reports of Walworth International Company status of working fund and inventories (as required by the general office)

- g) Vouchering for branch and Walworth International Company all expenditures made by such units
- 18. Personnel
Establishing and maintaining such personnel, policies, and organization and procedures for the performance, at each sales unit, of such functions as are or may be assigned to the jurisdiction of the personnel manager, under General Order No. 30 (as amended) or other subsequent orders, and delegated by him to the vice-president in charge of sales, as may be required by the former, subject to the approval of the president
- 19. Office management
Establishing and maintaining such office management policies, organization, and procedures for the performance at each sales unit of such functions as are or may be assigned to the jurisdiction of the general office manager, under General Order No. 53 or other subsequent general orders, and delegated by him to the vice-president in charge of sales, as the former may require, subject to the approval of the president

(Signed) HOWARD COONLEY, *President*

EXHIBIT V

March 5, 1921

GENERAL ORDER No. 62

GENERAL ORDERS

To: All executives for action
To: Others for information

Subject: JURISDICTION OF THE VICE-PRESIDENT IN CHARGE OF PRODUCTION

A. Introductory

Under the direct authority of the president, the vice-president in charge of production will have jurisdiction over the following functions:

B. Jurisdiction shared jointly with the vice-president in charge of sales

1. Approving additions to, alterations in design of, or discontinuance of Walworth products, with special reference to standardization
2. Approving the necessity for patenting Walworth products, and for acquiring product patents
3. Approving the location of new plants with reference to material and labor supply, and market advantages
4. Approving the classification of material as standard or special, and the acceptance of orders or contracts for special material
5. Approving the substitution of purchased for manufactured material
6. Approving the apportionment of factory storage space and inventory investment as between Walworth and resale material

7. Approving the basis for charging interplant and plant to export warehouse shipments
8. Approving the apportionment of Walworth stock as between plants and between plants and export warehouse
9. Approving the necessity for junking or salvaging slow-moving or obsolete finished stock or parts in plant inventories

NOTE.—Nothing in this section of this Order will be interpreted as conflicting with General Order No. 32 (as amended) with reference to the consulting, investigating, and recommending jurisdiction of the vice-president in charge of engineering as a member of the president's staff, where engineering decisions are referred or referable to the president

C. Inter-works jurisdictions

1. Production estimates and apportionments
Estimating consolidated works capacity, apportioning production as between works and comparing actual with estimated production for both works
2. Consolidated production and shipment data
Recording and reporting consolidated production and shipment data for both works
3. Consolidated direct shipment orders received data
Recording and reporting consolidated direct shipment orders and cancellations received at such works
4. Improvement of management
Investigating, improving, and standardizing works management methods

D. Intra-works functions

- i. Shipping orders
 - a) Orders received by each works (including both sales and supply orders except as otherwise noted)
 - (1) Preparatory routing
 - (a) Registering receipt and checking all shipments
 - (b) Re-editing, where necessary, and recopying
 - (c) Copying all packing lists and notices of shipment
 - (d) Manifolding in such quantities as required by works
 - (e) Maintaining order files and checking shipments by items
 - (f) Preparing all finished stock-issue tickets
 - (g) Ascertaining from sales units concerned or other works whether to "pick-up" sales order material not manufactured by the company or not in stock at works where not indicated on face of order and indicating purchasing department's authority to purchase on order or preparing requisitions where required

- (2) Shipment control and correspondence (in connection with sales orders)
 - (a) Ascertaining when shipment can be ready to ship and scheduling and releasing shipment, subject to priority, underweight, and other regulations affecting release of shipments
 - (b) Conducting all correspondence with sales units and other works as to interpretation, changes, substitutions, promises, progress, etc., except in case of engineering sales orders
- (3) Works pricing and claims
 - (a) Pricing as to list or unit price, including inserting pick-up purchase charges; except engineering sales orders not priced on a list and discount basis, and Kewanee Western division shipment orders (pending the transfer from Western division sales office from Chicago to Kewanee)
 - (b) Pricing as to discount all works shipment sales orders showing price basis only (except engineering sales orders not priced on a list and discount basis) and all stock orders placed on works
 - (c) Repricing where necessary at time of shipment, as to discount and/or list; except engineering sales orders not priced on a list and discount basis and Kewanee Western division shipments (pending the transfer of the foregoing indicated offices) and except where local rulings necessitate repricing of customers' orders by transmitting sales unit
 - (d) Checking pricing (and reporting errors in such pricing to sales units)
 - (e) Furnishing adjacent division claim department with all information available at the works affecting claims arising out of such orders except special technical information in possession of the Eastern or Western representative on engineering sales
- b) Orders placed by each works
 - (1) Copying
 - (2) Checking intercompany invoices as to pricing done by sales units and other works, and reporting errors in such pricing
 - (3) Furnishing adjacent division claim department with all information available at the works affecting claims arising out of such orders, except as to prices, covered under (2) hereinbefore
- 2. Planning
 - a) Balance of stores

- (1) Establishing and revising to meet sale requirements maxima and minima and quantities to order for:
 - (a) All stock (including part stock) to be produced at each works
 - (b) All raw material, factory supplies (including machine parts and tools), and office supplies to be used at each works
 - (c) All resale material stocked at each works
 - (2) Maintaining all balance of stores records of such material, subject to the functional control of the general auditor
 - (3) Determining and recording on finished stock or stores issue tickets availability of material called for on sales or supply orders or internal works requisitions, subject to the established priority regulations
 - (4) All shipment control and correspondence functions (see (2) above) in connection with intercompany supply orders on each works
 - (5) All pricing of stores issues for internal works and intercompany supply orders on each works
- b) Production orders
- (1) Standard and special routing
Establishing and maintaining for all standard Walworth materials at each works and for all recurring special material, standard departmental, machine group, and machine, routings, and preparing special routings for other material
 - (2) Bills of material
 - (a) Maintaining files of bills of material for all standard and all recurring special Walworth material
 - (b) Preparing the simpler classes of bills of material, as required under General Order No. 40 for engineering sales material
 - (3) Production orders
 - (a) Preparing all stock, special, and service production orders, condition of equipment notices, job time, and inspection job cards, stores issues (applying on such production orders) and such other accompanying instructions as may be required at each works
 - (b) Recording the issue, schedule time, goods produced, and actual time on such production orders, and production and schedule attained thereon
 - (4) Transfer tickets
Preparing and issuing transfer tickets authorizing all moving of work in process at each works
 - (5) Production reports
Preparing all production reports for each works

c) Production capacities

Recording and reporting production capacities at each works for co-ordination of sales and production

d) Time study and rating

Making, recording, and reporting all time and motion studies at each works, recording all rates, rating all time cards

e) Scheduling and dispatching of production orders

Scheduling all production, service, and special orders at each works as to time for completion, subject to priority and promise requirements, and as to time for each operation and dispatching such orders together with accompanying instructions

3. Engineering

NOTE.—The functions outlined in paragraphs *a)* to *c)* inclusive, hereinafter, will be performed under the functional supervision of the vice-president in charge of engineering and will not be interpreted as including any work performed by works engineering organization for him in connection with his general office jurisdiction as defined in paragraphs A 1 to A 4 inclusive of General Order No. 32 (as amended)

a) Internal works engineering functions as to materials

- (1) Testing raw materials and supplies requiring chemical or physical testing
- (2) Preparing standard formulals for the cupolas and brass furnaces and, for the present, daily formulas
- (3) Standardizing specifications for raw materials and supplies—including tool steel not standardized on an inter-works basis
- (4) Performing such chemical and physical testing as may be required in connection with (2) and (3) and all other chemical and physical tests of raw materials and supplies

b) Internal works engineering functions as to products

- (1) Preparing all shop drawings and shop specifications for products, except routine engineering sales order drafting as provided for under General Order No. 40
- (2) Recording, distributing, and filing such designs and specifications
- (3) Preparing special and standard bills of material except for simpler types of engineering material, as provided for under General Order No. 40
- (4) Estimating and quoting to sales units on special material
- (5) Inspecting as to dimension of sample castings from all new, replaced, rebuilt, or altered patterns
- (6) Making and recording of physical and chemical tests of products where such testing requires laboratory apparatus

- (7) Such other research and investigational work performed at each works in connection with products, as may be required by the works manager, or the vice-president in charge of engineering
- c) Internal works engineering functions as to equipment
 - (1) Investigation and reporting as to the necessity for new maintenance equipment and the relative advantages of manufacturing, as against purchasing such equipment
 - (2) Designing and specifying such equipment where it is to be manufactured by the Walworth Manufacturing Company
 - (3) Specifying or approving specifications for such equipment, where it is to be purchased
 - (4) Inspecting, and testing where necessary, all new machinery, tools, and patterns as to conformity with Walworth standards and performing such subsequent inspection and tests as require special engineering knowledge or apparatus
 - (5) Maintaining all necessary records of machine capacity and performance and reporting thereon
 - (6) Investigating and reporting on layout of machinery with reference to routing of work in process
- d) Internal works engineering functions as to buildings and grounds
 - (1) Investigating and reporting on the necessity of plant extensions, alterations, and repairs
 - (2) Designing and specifying such extensions, alterations, and repairs and recording, distributing, and filing such designs and specifications
 - (3) Reviewing the cost of such extensions, alterations, and repairs
 - (4) Assisting the works maintenance organization on engineering problems connected with such work
- e) Internal works engineering functions as to processes
 - Investigating and analyzing works construction, production, operating and maintenance methods and results, and experimental research connected therewith
- f) Works appropriations
 - Preparing all requests for works appropriations, reviewing costs thereof, as well as of other expenditure not involving appropriations
- 4. Production
 - Supervising and performing all manufacturing operations at each works
- 5. Inspection
 - a) Castings, work in process, and finished stock
 - Inspecting (and testing when necessary) at each works all Walworth castings, work in process and finished stock as to

- conformity with Walworth standards, and count (other than special engineering inspection of castings for new patterns)
- b) Resale material
Inspecting (and testing when necessary) all resale material received at each works as to conformity with Walworth standards (other than special engineering inspection)
 - c) Returned material
Inspecting (and testing when necessary) all material returned to each works as to suitability for putting back into stock, repairing, scrapping, or returning to vendors
 - d) Raw material and supplies
Inspecting (and testing when necessary) all raw material and supplies purchased by each works as to conformity with Walworth standards, and periodically as to condition (other than special engineering inspection and testing)
6. Construction, maintenance, and operation
- a) Constructing, installing, or authorizing the purchase of and/or installing all improvements and additions to the land, buildings, equipment, machines, tools and patterns, and dies not chargeable to specific jobs, at each works
 - b) Keeping up and repairing such property and employment of outside service therefor, including watchman and fire protection service
 - c) Operating the heat, light, power, and water service at each works and seeing to it that proper service is rendered by all outside companies concerned in such service
 - d) Constructing and/or installing improvements and additions to and/or repairing Walworth-owned property at the branches or general or division offices on requisition by the executive having jurisdiction over such property
 - e) Inspecting all machinery, tools, and patterns periodically as to condition (other than special engineering inspection and testing)
 - f) Inspecting (and testing when necessary) all construction and maintenance work performed by each works organization, and all such work performed by outside organizations or elsewhere for the company on requests by proper executives (other than special engineering inspection and testing)
7. Materials
- a) Receiving
Weighing in, checking against purchase order, paying express charges for, recording and reporting receipt of, directing delivery of or causing to be delivered all incoming material at each works
 - b) Moving
Loading and unloading and moving to and from storage, between and within departments and in the yards, to and from

carriers, customers, vendors, Boston branch (in case of Boston works) and public dumps all material (including salvage and refuse) at each works, and recording and reporting all such transfers except that of refuse

c) Storing

Storing all material at each works, recording its receipt into and issue from stores, and conducting all inventories at each works (subject to the functional control of the general auditor)

d) Packing

Packing, marking, and painting, when necessary, all materials to be shipped from each works, including packing or wrapping for shelf display

e) Shipping

(1) Preparing and distributing all bills of lading and other shipping papers for, checking descriptions for, weighing out, preparing, and obtaining receipt for (in the case of express shipments), supervising loading of, and sealing cars for, when required, all outgoing shipments at each works

(2) Weighing out and obtaining receipt from buyer's representative for all salvage material sold at each works

f) Junking of salvage material, barrels, etc.

Junking (but not salvaging) and recording junking of all finished material junked at each works, subject to the approval of the vice-president in charge of sales as to necessity for such action

8. Traffic

Establishing and maintaining such policies, organization, and procedure at each works for the performance of such functions as are or may be assigned to the jurisdiction of the general traffic manager in General Order No. 56 or subsequent general orders and delegated by him to the vice-president in charge of production, as the former may require, subject to the approval of the president; with special reference to:

a) Routing outgoing shipments at each works as to carrier and route

b) Advising shipping department as to proper methods of preparing and handling shipping papers, custody of outgoing shipping documents, and recording of outgoing prepaid shipments

c) Supervising loading and unloading of cars with reference to carriers' regulation and safety of company's material

d) Quoting traffic rates to works purchasing department, keeping such department advised as to local rate increases and checking shipping orders as to freight allowance rate and war tax

- e) Tracing incoming and outgoing shipments and advising works purchasing department as to routings for incoming material
- f) Approving freight bills as to rate and preparing charges for switch rental service
- g) Adjusting claims with carriers
- h) Collecting c.o.d. remittances from carriers
- i) Procuring passenger tickets and preparing itineraries for employees

9. Purchasing

Establishing and maintaining such policies, organization, and procedure at each works for the performance of such functions as are or may be assigned to the jurisdiction of the general purchasing agent in General Order No. 52 and amendment thereto or other subsequent general orders and delegated by him to the vice-president in charge of production, as the former may require, subject to the approval of the president

10. Office management

Establishing and maintaining such office management policies, organization, and procedures for the performance at each works of such functions as are assigned to the jurisdiction of the general office manager, in General Order No. 53 and delegated by him to the vice-president in charge of production as the former may require, subject to the approval of the president

11. Accounting

Establishing and maintaining such policies, organization, and procedures at each works for the performance of such functions as are or may be assigned to the jurisdiction of the general auditor in General Order No. 46 and other subsequent general orders and delegated by him to the vice-president in charge of production, as the former may require, subject to the approval of the president; with special reference to:

- a) Figuring all customers' (except for Kewanee Western division shipments pending the transfer of Western division invoicing to Kewanee) and all intercompany charges for all shipments from each works and all debit and credit memoranda arising out of shipments from each works, and preparing all invoices and debit and credit memoranda therefrom
- b) Preparing supporting vouchers for disbursements at each works
- c) Distributing all incoming invoices at works to detailed works accounts
- d) Keeping all works pay roll, inventory, and cost accounting, and statistics as specified or covered in General Order No. 46

12. Personnel

Establishing and maintaining such policies, organization, and procedure at each works for the performance of such functions as are or may be assigned to the jurisdiction of the personnel manager, and delegated by him to the vice-president in charge of production, as in General Order No. 30 (as amended), as the former may require, subject to the approval of the president

13. Finance

Establishing and maintaining such policies, organization, and procedure at each works for the performance of such functions as are or may be assigned to the jurisdiction of the treasurer in General Order No. 57 and delegated by him to the vice-president in charge of production, as the former may require, subject to the approval of the president; with special reference to:

- a) Indorsing and banking remittances received at each works
- b) Maintaining paymasters and petty cash funds at each works
- c) Making up pay roll at each works, preparing salary checks and disbursing checks or cash, except special pay rolls handled from division financial offices
- d) Reporting pay-roll data required by insurance companies
- e) Disbursing all petty cash at each works
- f) Collecting for sales to employees at each works

(Signed) HOWARD COONLEY, *President*

EXHIBIT VI

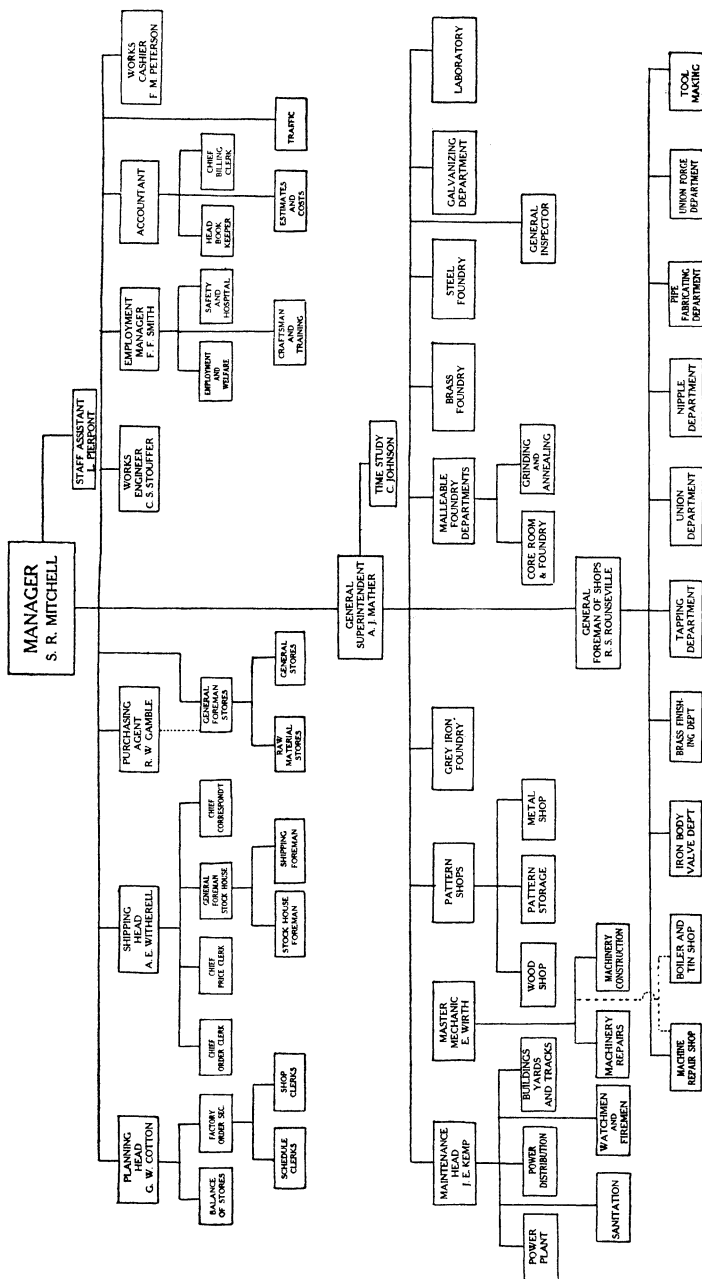
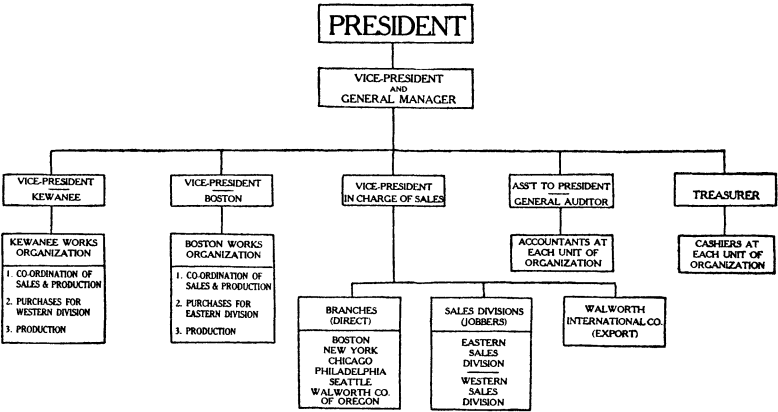


EXHIBIT VIII



JAMES O. MCKINSEY

UNIVERSITY OF CHICAGO